

Medical Student, Physician, and Public Perceptions of Health Care Disparities

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Objectives: This study investigates first- and fourth-year medical students' perceptions about health care disparities and compares their perceptions with those of physicians and the public. **Methods:** We conducted an analysis of a national survey of medical students that included questions addressing unfair treatment of patients in the health care system based on insurance status, money, English language ability, and race/ethnicity. Results were compared with previously collected data from surveys of physicians and the public. The study also analyzed students' opinions about workforce diversity and cultural competence curricula. **Results:** Medical students were generally more likely than physicians and the public to perceive unfair treatment of patients. First-year medical students were more likely than fourth-year students, and fourth-year students more likely than physicians, to perceive unfair treatment. Minority medical students and physicians were generally more likely than their white counterparts to perceive unfair treatment. The majority of medical students desired more exposure to disparity issues and endorsed medical workforce diversity. **Conclusions:** Perceptions of unfair treatment in the health care system differ among medical students, physicians, and the public, as well as among racial/ethnic groups. Minority students and physicians are more likely to perceive greater levels of unfairness. Our results suggest that perceptions of unfair treatment may decline during the process of acculturation to the medical profession. Interventions to reduce health care disparities must address the process of medical education and training.

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Inequities in the US health care system have been well documented. Racial and ethnic minorities, the uninsured, and other disadvantaged populations receive poorer quality health care.¹⁻⁶ Several studies have shown that physicians' perceptions about patients are influenced by patients' race/ethnicity and socioeconomic status, and these perceptions in turn influence physicians' behavior in medical encounters.⁷⁻⁹ No studies have investigated how medical students and physicians perceive health care disparities and whether they consider disparities as reflecting unfairness in the health

care system. Although prior research has demonstrated a decline in altruism¹⁰ and a trend toward more conservative sociopolitical attitudes¹¹ as students progress through medical training, it is not known how medical school experiences may affect perceptions about health disparities and if medical students' and physicians' perceptions differ from those of the general public.

Understanding perceptions of disparities is important for several reasons. This understanding could inform efforts by medical schools to develop and refine cultural competence and health policy curricula by providing an indication of how medical students currently perceive race/ethnicity and social factors to affect patient care. Medical students and physicians alike may benefit from appreciating how their perceptions toward disparities may potentially differ from those of the public, allowing health care professionals to have greater insight into their patients' experiences. Our study's goal, therefore, is to generate discussion, increase awareness,

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and motivate change by providing the first comparison of medical student, physician, and the public's perceptions of health care disparities and unfair treatment in the US health care system.

Methods

AMSAF Survey of Students

In 2002, the American Medical Student Association Foundation (AMSAF) conducted a survey of students enrolled in US medical schools. To investigate medical students' perceptions of health care disparities, students were asked, "How often do you think our health care system treats people unfairly based on: whether or not they have health insurance, how much money they have, how well they speak English, what their race or ethnic background is?"

Participants in the AMSAF national mail survey were first- and fourth-year medical students selected by probability sampling methods from the American Medical Association (AMA) masterfile. The file included all medical students, not just members of the American Medical Student Association. Fourth-year medical students were oversampled due to a low expected response rate. The medical student survey had 789 respondents and a 57% response rate. Female students were more likely than male students to respond to the survey (63% versus 55%, $P < .01$). The results were weighted during analysis to adjust for race, gender, and student year to account for differential response rates and disproportionate sampling and to more accurately reflect the national population of first- and fourth-year medical students.

Kaiser Surveys of Patients and Physicians

To understand how medical student perceptions might differ from those of physicians and the general public, we compared their responses to those of respondents to two prior Kaiser Family Foundation (KFF) surveys asking the same questions about unfair treatment in our health care system. In 2001, KFF conducted a mailed survey of a national probability sample of practicing physicians. Physicians were selected from the AMA masterfile, supplemented by information from the Association of American Medical Colleges. The AMA masterfile includes both members and nonmembers. African American, Latino, and Asian physicians were oversampled.

Results were adjusted using an initial sampling weight computed as the inverse of the probability of selection. Adjustment cell weighting was then used to compensate for missing data due to unknown eligibility or nonresponse.¹² The physician survey had 2,608 respondents and a response rate of 53%.¹³

The KFF also conducted a national survey of the US adult population in 1999. The survey was administered by telephone interviews with adults 18 and over. The sample was based on a stratified random-digit sample

of telephone numbers, oversampling African Americans and Latinos. Some questions in the survey were rotated and asked of only half the respondents. Demographic weighting parameters were derived from an analysis of US Census data performed by KFF. Results were weighted to adjust for variations in the sample relating to region of residence, gender, age, race, and education. The survey sample included 3,884 respondents, with a response rate of 49%.¹⁴

Data Analysis

We obtained the raw data from the two KFF surveys to perform analyses comparing results with our medical student survey. We analyzed responses to the questions on unfair treatment for all three surveys. Response options were "very often," "somewhat often," "not too often," "never," or "don't know" (the last response option was not included in the physician survey). We calculated proportions of participants responding "very often" or "somewhat often" for each question on disparities. We separately compared the perceptions of first- and fourth-year medical students with those of practicing physicians, while considering the influence of race/ethnicity, age, and gender on their responses. A risk ratio was developed to evaluate the likelihood of minority respondents perceiving unfair treatment in relation to their white counterparts. For both the physician and public surveys, computations of statistical significance and 95% confidence intervals incorporated error terms developed by KFF to correct for the complex sampling design effects of these surveys.¹⁴

Results from the survey of the adult US population have been previously published.¹⁵ Our analysis of the public survey differs slightly from this prior report due mostly to different schemes for classifying respondents who reported both Latino ethnicity and African American race (a secondary racial/ethnic response category included on the public survey only). We categorized these respondents as African American to be consistent with the medical student and physician surveys.

To further explore medical students' perceptions of health disparities and how medical school experiences may affect their perceptions, we also analyzed student responses to questions on workforce diversity and cultural competence curricula that were not included in the other surveys. Students were asked if they agreed that it is "important that the racial composition of our medical professional workforce mirrors the diversity of American society" and that "my school has adequate curriculum in place to teach me about racial/ethnic disparities in access, cultural competency issues, and communicating effectively with patients that speak a language other than English." They were also asked if they would "prefer increased exposure" to these issues. Responses were again analyzed by students' year in medical school as well as by race/ethnicity.

Results

The demographic characteristics of respondents are shown in Table 1. The greater proportion of African American and Latino respondents to the public and physician surveys relative to the medical student sur-

vey reflects the oversampling of these groups in those surveys.

Medical students were significantly more likely than physicians to perceive unfairness, especially for factors other than insurance status (Figure 1). Based on the analyses of weighted data, more than 70% of medical students, physicians, and the public perceived that people are often treated unfairly based on health insurance status. The majority of medical students and the public also believed that people are treated unfairly based on the amount of money they have, their ability to speak English, and their race or ethnic background.

First-year students were consistently more likely to perceive unfair treatment than fourth-year students were, although the fourth-year students were still much more likely than physicians to perceive unfairness in all categories (Table 2). For example, while the percentage of students perceiving unfairness based on race/ethnicity was 62% for first-year students and 51% for fourth-year students ($P<.01$), only 30% of physicians responded similarly.

To explore whether differences between the age and gender distribution of medical students and physicians accounted for the differences in perceptions of unfairness, we separately examined young physicians (under the age of 45) and female physicians. Although younger physicians and female physicians were generally more likely to perceive unfairness, the rates for physicians in these groups remained lower than those for medical

Table 1

Demographic Characteristics of Respondents

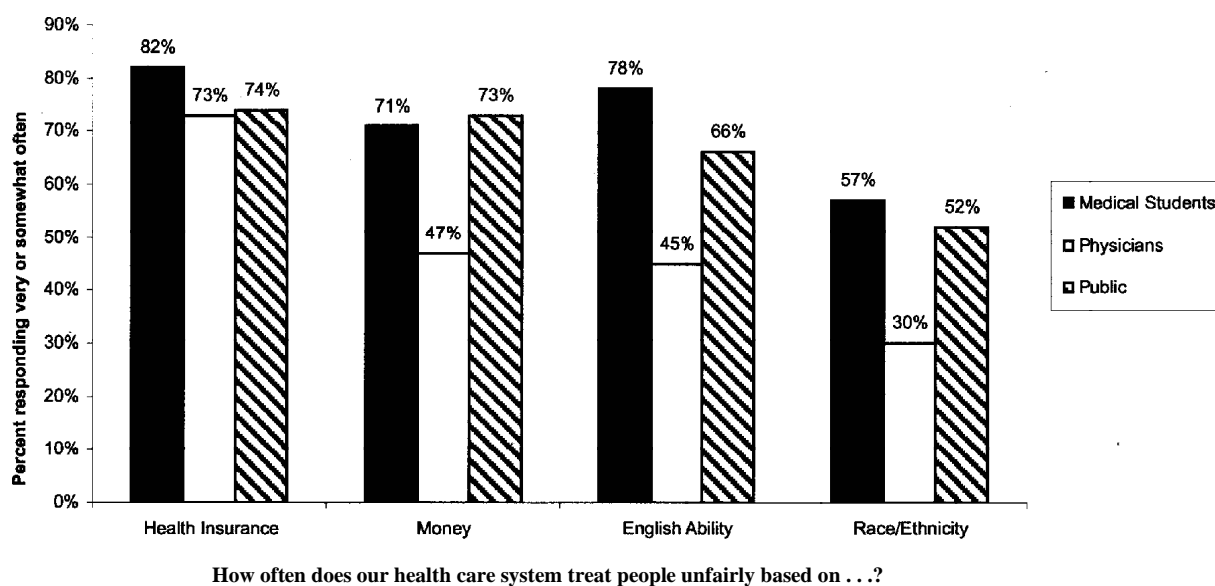
| | <i>Medical Students</i> <i>n=789</i> | | <i>Physicians</i> <i>n=2,608</i> | | <i>Public</i> <i>n=3,884</i> | |
|------------------|---|--------|-------------------------------------|--------|---------------------------------|--------|
| | # | (%) | # | (%) | # | (%) |
| Race/ethnicity | | | | | | |
| African American | 40 | (5.2) | 239 | (9.4) | 1,279 | (33.2) |
| Latino | 33 | (4.3) | 244 | (9.6) | 893 | (23.2) |
| Asian | 124 | (16.2) | 484 | (19.1) | 75 | (2.0) |
| White | 533 | (69.8) | 1,474 | (58.1) | 1,479 | (38.4) |
| Other | 34 | (4.5) | 96 | (3.8) | 122 | (3.2) |
| Gender | | | | | | |
| Male | 408 | (51.7) | 1,961 | (75.2) | 1,696 | (43.7) |
| Female | 381 | (48.3) | 647 | (24.8) | 2,188 | (56.3) |
| Age | | | | | | |
| <45 | 785 | (99.5) | 1,191 | (45.7) | 2,473 | (63.7) |
| 46–55 | 4 | (0.5) | 779 | (29.9) | 592 | (15.2) |
| >55 | 0 | 0 | 638 | (24.5) | 819 | (21.1) |

This table presents participant characteristics of the unweighted samples.

Some columns may not equal 100% due to rounding.

Figure 1

Medical Student, Physician, and Public Perceptions of the Health Care System



$P<.001$ for overall differences between groups for each question

Table 2

First-year Medical Student, Fourth-year Medical Student, and Physician Perceptions of the Health Care System*

"Our health care system treats people unfairly very or somewhat often based on:"

| | <i>First-year Medical Students n=302</i> | <i>Fourth-year Medical Students n=487</i> | <i>Physicians n=2,608</i> |
|------------------|--|---|-------------------------------|
| Health insurance | 87%** | 78% | 73% |
| Money | 80% | 62% | 47% |
| English ability | 83% | 73% | 45% |
| Race/ethnicity | 62% | 51% | 30% |

* $P < .05$ for all pairwise comparisons among first-year students, fourth-year students, and physicians for each question.

**Percent responding "very often" or "somewhat often"

students in comparable groups. For example, the majority of young (56%) and female (61%) medical students perceived unfair treatment based on race/ethnicity, while a minority of young (31%) and female (40%) physicians responded similarly ($P < .001$).

Table 3 shows responses stratified by respondents' race/ethnicity. In general, minority medical students and physicians were more likely to perceive unfair treatment in the health care system than their white counterparts were. Divergence in perceptions of unfairness according to the respondent's race/ethnicity was most pronounced among physicians, with African American and Latino physicians being three and two times more likely, respectively, than white physicians to perceive unfair treatment based on race/ethnicity. African American medical students and physicians perceived higher rates of unfair treatment based on all factors than their counterparts did in other racial/ethnic groups. The public showed much less variation by race/ethnicity than physicians or medical students.

When medical students were asked about workforce and curricula issues (Table 4), the majority of medical students (61%) believed that their schools have adequate curricula in place to teach them about disparities, but only a minority (36%) of African American students believed this. An even greater percentage of students, however, still desired more exposure to these issues (72%). The majority of students also agreed that it is important that the medical professional workforce mirror the diversity of American society, with African American and Latino students strongly endorsing the importance of workforce diversity.

Discussion

Medical students were more likely than physicians to perceive unfair treatment in the health care system, and first-year medical students were consistently more likely than fourth-year students to perceive unfairness. The majority of medical students, physicians, and the public agreed that people are treated unfairly based on their health insurance status. This finding is consistent with popular concern over the rising numbers of uninsured people in the United States, now more than 41 million.¹⁶ The majority of medical students and the public (but not of physicians) also believed that people are treated unfairly based on the amount of money they have, their ability to speak English, and their race or ethnic background.

The wording of the survey question used to assess perceptions toward disparities required respondents to not simply express an opinion about the existence of inequalities in care but to render an interpretation of inequalities. Agreement with a statement about unfairness implies not only a belief that treatment is unequal but also a judgment that these differences are due to unfair treatment of patients. Differences in responses among medical students, physicians, and the public may therefore reflect differences in views on inequality, in attribution of reasons for inequality, or both.

Additional data from the physician survey suggests that physicians' lower likelihood of perceiving unfairness due to patient race/ethnicity is not simply a matter of physicians not perceiving that inequalities in treatment exist. When physicians were asked a more objective question about the presence of racial differences in cardiac care, for which strong evidence exists about racial inequalities,¹ 65% acknowledged that unequal treatment occurs in this context.¹³ This question only appeared in the physician survey. Much of the difference among medical student, physician, and public responses to the survey item on unfairness may thus lie in differences in how these groups interpret unequal treatment.

The difference in perceptions between first-year students, fourth-year students, and physicians supports the notion that the process of acculturation into the profession of medicine affects perception of unequal treatment. Over time, medical students and physicians may become less willing to ascribe the disparities reported in current medical research to unfair treatment practiced by their peers and the health care system within which they work. Acculturation into the medical profession may make students and physicians less accepting of the possibility that physicians harbor prejudice and bias and less open to acknowledging explanations for these disparities that imply discriminatory practices. On the other hand, as students progress through their medical training and gain experience working directly with patients and clinical faculty, the difference in per-

Table 3
Perceptions of Health Care Disparities by Race of Respondent

“Our health care system treats people unfairly very or somewhat often based on:”

| | | <i>African American</i> <i>n=40</i> | <i>Latino</i> <i>n=33</i> | <i>Asian</i> <i>n=124</i> | <i>White</i> <i>n=533</i> |
|------------------|------------|--|------------------------------|------------------------------|------------------------------|
| Medical students | | | | | |
| Health insurance | % * (CI)** | 100 (97–100) | 81 (68–94) | 89 (83–95) | 79 (76–82) |
| | Risk*** | 1.3 | 1.0 | 1.1 | ref† |
| Money | % (CI) | 88 (78–98) | 77 (63–91) | 75 (67–83) | 68 (64–72) |
| | Risk | 1.3 | 1.1 | 1.1 | ref |
| English ability | % (CI) | 88 (78–98) | 89 (78–100) | 77 (70–84) | 76 (72–80) |
| | Risk | 1.2 | 1.2 | 1.0 | ref |
| Race/ethnicity | % (CI) | 91 (82–100) | 74 (59–89) | 61 (52–70) | 50 (46–54) |
| | Risk | 1.8 | 1.5 | 1.2 | ref |
| Physicians | | <i>n=239</i> | <i>n=244</i> | <i>n=484</i> | <i>n=1,474</i> |
| Health insurance | % (CI) | 89 (85–93) | 74 (68–80) | 72 (68–76) | 73 (71–75) |
| | Risk | 1.2 | 1.0 | 1.0 | ref |
| Money | % (CI) | 75 (71–79) | 56 (50–62) | 42 (38–46) | 47 (44–50) |
| | Risk | 1.6 | 1.2 | 0.9 | ref |
| English ability | % (CI) | 74 (68–80) | 62 (56–68) | 43 (39–47) | 43 (40–46) |
| | Risk | 1.7 | 1.4 | 1.0 | ref |
| Race/ethnicity | % (CI) | 79 (74–84) | 51 (45–57) | 34 (30–38) | 25 (23–27) |
| | Risk | 3.2 | 2.0 | 1.4 | ref |
| Public | | <i>n=1,279</i> | <i>n=893</i> | <i>n=75</i> | <i>n=1,479</i> |
| Health insurance | % (CI) | 74 (70–78) | 72 (67–77) | 78 (62–94) | 74 (71–77) |
| | Risk | 1.0 | 1.0 | 1.1 | ref |
| Money | % (CI) | 75 (71–79) | 67 (62–72) | 72 (56–88) | 73 (69–77) |
| | Risk | 1.0 | 0.9 | 1.0 | ref |
| English ability | % (CI) | 63 (58–68) | 71 (66–76) | 73 (57–89) | 66 (62–70) |
| | Risk | 1.0 | 1.1 | 1.1 | ref |
| Race/ethnicity | % (CI) | 58 (53–63) | 55 (50–60) | 57 (40–74) | 51 (47–55) |
| | Risk | 1.1 | 1.1 | 1.1 | ref |

* Percent responding “very often” or “somewhat often”

** 95% confidence interval

*** Risk ratio

† Referent group for risk ratio

ceptions may reflect a new understanding of disparities and the complexity of attributing cause.

The divergence of opinion by race/ethnicity between medical students and physicians suggests that the process of acculturation may affect people differently depending on their race/ethnicity. Medical students and physicians from underrepresented minority groups were generally more likely to perceive unfair treatment in the health care system than their white counterparts and even more likely than the public. African American and Latino physicians were particularly more likely than their white counterparts to perceive unfair treatment based on race/ethnicity. Minority medical students were

also the most likely to desire increased exposure to disparity issues and to endorse workforce diversity in the medical profession. It may be that minority medical students are more sensitized to issues of unfairness due to their previous life experiences or even their own experiences in medical school. Research has demonstrated high levels of harassment and discrimination on the basis of race and gender during medical training.^{17,18} Greater awareness of health disparities among minority physicians may also be due to increased levels of exposure to these disparities. Research has shown that African American and Latino physicians are more likely to work in minority communities.¹⁹

Table 4

Medical Student Opinions*

| | | <i>All</i> <i>n=789</i> | <i>First</i> <i>Year</i> <i>n=302</i> | <i>Fourth</i> <i>Year</i> <i>n=487</i> | <i>African</i> <i>American</i> <i>n=40</i> | <i>Latino</i> <i>n=33</i> | <i>Asian</i> <i>n=124</i> | <i>White</i> <i>n=533</i> |
|---------------------------|-------|----------------------------|---|--|--|------------------------------|------------------------------|------------------------------|
| Workforce diversity | Agree | 70% | 70% | 70% | 100% | 97% | 73% | 64% |
| Adequate curricula | Agree | 61% | 63% | 58% | 36% | 73% | 52% | 64% |
| Prefer increased exposure | Yes | 72% | 79% | 65% | 100% | 84% | 79% | 67% |

* Full questions:

1. It is important that the racial composition of our medical professional workforce mirrors the diversity of American society.
2. My school has adequate curricula in place to teach me about racial/ethnic disparities in access, cultural competency issues, and communicating effectively with patients that speak a language other than English.
3. Would you prefer increased exposure to teaching about racial/ethnic disparities in access, cultural competency issues, and communicating effectively with patients that speak a language other than English.

$P < .001$ for overall comparisons among racial/ethnic groups for each question

$P < .001$ for comparison of first- and fourth-year students for final question, $P > .05$ for first two questions

Although most medical students stated that their schools have an adequate curriculum in place to teach them about disparities, the majority desired more exposure to these issues. Students also largely agreed that the medical workforce should mirror the diversity of our society. These results reinforce the findings of a recent study demonstrating that diversity in the student body enhanced the educational experience of medical students of all racial and ethnic backgrounds.²⁰ Our findings also highlight the importance of current efforts to improve and standardize cultural competence curricula in US medical schools.²¹

Limitations

Our study is limited by several factors. First, although the questionnaires used to survey the public, practicing physicians, and medical students were similar, there were some differences that could have altered the results. For example, the response option "don't know" was not included in the physician survey, and this response was dropped from the analysis of the medical student and public surveys. It is possible that these "don't know" responses, although representing a small portion of overall responses, reflected a distinct and important perception of unfair treatment. However, when we analyzed the "don't know" responses in the student survey as "not often" or "not at all" responses, overall percentages changed less than 2%, and the differences among students, physicians, and the public remained significant.

Second, although the survey response rates (49%–57%) are in line with those found in other published studies,^{22–24} nonresponse bias is a potential limitation of our study. However, when we analyzed the demo-

graphic characteristics of nonrespondents versus respondents in the medical student survey, there were relatively small differences between groups, and weighting was used in the analysis to address measured factors potentially contributing to response bias. We did not have information on the characteristics of nonrespondents for the Kaiser surveys to determine the potential influence of nonresponse bias.

Third, the medical student survey had a relatively small number of respondents from underrepresented minority groups, and thus we had limited power from which to draw inferences regarding African American and Latino students. Fourth, since the medical student survey was cross sectional, we could not determine whether differences we observed between first- and fourth-year medical students represented changes over time or cohort effects.

Finally, the three surveys were administered in different years. It is possible that our results reflect secular changes in perceptions over time; however, we question whether perceptions would have shifted significantly during the 3-year span (1999–2002) of the surveys.

Conclusions

In summary, our study indicates that differences in perceptions of unfair treatment in the health care system exist among medical students, physicians, and the public, as well as among racial/ethnic groups. Although the majority of medical students, physicians, and the public appeared to acknowledge that some health care disparities exist, first-year medical students and minority physicians were the most likely to perceive unfair treatment. The possibility that the differences among

first-year students, fourth-year students, and physicians may be due to a process of acculturation suggests a need to address the process of medical education and training and how the experience of working in the health care system may affect people differently. Achieving the Healthy People 2010 goal of eliminating health care disparities²⁵ will require recognition of these different perceptions and a greater understanding of physician and medical student perceptions toward disparities as a precursor to more effective interventions for reducing inequities in health care. Ensuring diversity in educational institutions and the medical workforce, addressing discrimination in medical school, improving cultural competence curricula during medical training, and encouraging a dialogue between physicians and the public will enhance insights among health care professionals into both the perceptions and realities of unfairness in the health care system.

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